UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,254	03/26/2004	Ciprian Chelba	M61.12-0625	8308

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EXAMINER
RIDER, JUSTIN W

ART UNIT	PAPER NUMBER
2626	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/810,254	CHELBA ET AL.
	Examiner	Art Unit	
	Justin W. Rider	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>26 March 2004</u>.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-20</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) <u>18-20</u> is/are allowed.

6) ☒ Claim(s) <u>1-9 and 11-16</u> is/are rejected.

7) ☒ Claim(s) <u>10 and 17</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>29 March 2004</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This action is responsive to communications: Application filed 26 March 2004. Claims

1-20 are pending.

Information Disclosure Statement

2.   The information disclosure statement(s) (IDS) submitted on 28 January 2005 is/are in

compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the

information disclosure statement(s).

It is noted that applicant failed to include the reference by **Katz**, however in order to

further prosecution, the Examiner has entered this prior art reference into the record.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

4.   Claims 11-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed

to non-statutory subject matter.

Claims 11-17 are drawn to a "program" per se as recited in the preamble (computer-

readable medium defined in the specification as communication media, which further comprises

carrier waves) and as such is non-statutory subject matter. See MPEP § 2106.1V.B.1.a. Data

structures not claimed as embodied in computer readable media are descriptive material per se

and are not statutory because they are not capable of causing functional change in the computer.

See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held

nonstatutory). Such claimed data structures do not define any structural and functional

interrelationships between the data structure and other claimed aspects of the invention, which

permit the data structure's functionality to be realized. In contrast, a claimed computer readable

medium encoded with a data structure defines structural and functional interrelationships

between the data structure and the computer software and hardware components which permit

the data structure's functionality to be realized, and is thus statutory. Similarly, computer

programs claimed as computer listings per se, i.e., the descriptions or expressions of the

programs are not physical "things." They are neither computer components nor statutory

processes, as they are not "acts" being performed. Such claimed computer programs do not

define any structural and functional interrelationships between the computer program and other

claimed elements of a computer, which permit the computer program's functionality to be

realized.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6.   Claims 1-9 and 11-16 are rejected under 35 U.S.C. 102(b) as being anticipated by **Lau et**

al. (US Patent No. 5,467,425) referred to as **Lau** hereinafter.

Claim 1: **Lau** discloses a method of storing parameters (abstract) of a deleted

interpolation language model (col. 2, lines 37-38), the method comprising:

i. obtaining a set of parameters for the deleted interpolation language model (col. 2, lines 44-50); and

ii. storing at least one parameter for the deleted interpolation language model as a parameter for a backoff language model (col. 2, lines 44-46, *'This model requires the storage of records that identify... ').*

Claim 2: **Lau** discloses a method as per claim 1 above, wherein storing at least one parameter for a deleted interpolation language model comprises storing an interpolated probability of a sequence of words as a probability for a sequence of words in the backoff language model (col. 2, lines 44-56, e.g. a trigram id $w_1w_2w_3$ and its <u>count</u> $c(w_1w_2w_3)$.).

Claim 3: **Lau** discloses a method as per claim 2 above, wherein storing an interpolated probability comprises determining that a relative frequency for the sequence of words is greater than a threshold before storing the interpolated probability as a probability (col. 3, lines 38-45).

Claim 5: **Lau** discloses a method as per claim 2 above, wherein storing an interpolated probability comprises determining that the sequence of words forms a context for an n-gram in the backoff language model before storing the interpolated probability as a probability (col. 3, lines 54-60, *'these factors represent the relative strength of predicting a word given the previous two words. ').*

Claim 6: **Lau** discloses a method as per claim 1 above, wherein storing at least one parameter for a deleted interpolation language model comprises storing an interpolation weight for the deleted interpolation model as a backoff weight for the backoff language model (col. 3, lines 5-10, *'The smoothing parameters are the relative weight given to each quotient... ').*

Claim 7: **Lau** discloses a method as per claim 6 above, wherein storing the interpolation

weight further comprises storing a sequence of words associated with the interpolation weight in

a same entry as the interpolation weight (col. 3, lines 10-15, *'The smoothing parameters are*

estimated by using a portion of the training data. A percentage, e.g. five percent, of the training

data is not used as training data. Instead this percentage of data is "held-out", i.e., not used to

train the language model. Instead this held-out data is used to fine-tune the smoothing

parameters. The smoothing parameters are estimated by maximizing the likelihood of this held-

out data.' [emphasis supplied]).

Claim 8: **Lau** discloses a method as per claim 1 above, wherein obtaining a set of

parameters comprises training a set of interpolation weights (col. 3, lines 5-10, *'The smoothing*

parameters are the relative weight given to each quotient...').

Claim 9: **Lau** discloses a method as per claim 1 above, wherein training a set of

interpolation weights comprises training a separate weight for each of a set of frequency count

ranges (col. 2-3, Eq (4); col. 3, lines 7-9, *'The smoothing parameters are the relative weight*

given to each quotient of Equation (4).' [emphasis supplied]).

Claim 11: Claim 11 is similar in scope and content to that of claim 1 above, and so

therefore is rejected under the same rationale.

Claims 12 and 13: Claims 12 and 13 are similar in scope and content to that of claim 3

above, and so therefore are rejected under the same rationale.

Claim 14: Claim 14 is similar in scope and content to that of claim 5 above, and so

therefore is rejected under the same rationale.

Claim 15: Claim 15 is similar in scope and content to that of claim 2 above, and so therefore is rejected under the same rationale.

Claim 16: Claim 16 is similar in scope and content to that of claim 6 above, and so therefore is rejected under the same rationale.

Allowable Subject Matter

7.   Claims 18-20 are allowed.

The following is an examiner's statement of reasons for allowance: Claim 18is directed towards storing deleted interpolation parameters in a data structure that conforms to the ARPA standard for backoff language models. Where **Lau** does disclose the storage of deleted interpolation models in a form similar to backoff modeling, **Lau** fails to specifically disclose the storing of parameters conforming to a specific format (ARPA) for a specific model (Backoff modeling). Claims 19 and 20 would also be allowable for at least further limiting the scope of Claim 18.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8.   Claims 10 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 10 and 17 are directed toward storing deleted interpolation parameters in a data structure

that conforms to the ARPA standard for backoff language models. Where **Lau** does disclose the

storage of deleted interpolation models in a form similar to backoff modeling, **Lau** fails to

specifically disclose the storing of parameters conforming to a specific format (ARPA) for a

specific model (Backoff modeling).

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. **Damerau et al. (US Patent No. 5,258,909), Brown et al. (US Patent No.**

5,267,345), and Merialdo (US Patent No. 5,444,617) all disclose the storing of deleted

interpolation parameters.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Justin W. Rider whose telephone number is (571) 270-1068. The

examiner can normally be reached on Monday - Friday 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David R. Hudspeth can be reached on (571) 272-7843. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center

(EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer

Service Representative or access to the automated information system, call 800-786-9199 (IN

USA OR CANADA) or 571-272-1000.

J.W.R.
06 September 2007

**DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
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